

## ABSTRACT

A method, named the product terms method that allows to implement and/or to change dynamically the logical behaviour of any combinational or synchronous sequential circuits has been presented. The method uses for every product term of logical equations, expressed as a sum-of-product, three memory words: mask word, product word and function word. The words of all product terms are ranged in a table, which characterize the logical behaviour of the circuit.

The invention provides the hardware structure of several new types of VSLI circuits, having re-configurable logic behaviours. A first embodiment implements any type of multiple output combinational circuit, a second embodiment implements any synchronous sequential circuit with only clock input and, a third embodiment implements any synchronous sequential circuits with data inputs and clock input.

An expert system capable to generate the tables used for the product terms method by interpreting and analysing the logical equations either supplied by the user or found in a database is also provided.